SB 361

Department of Legislative Services

Maryland General Assembly
2005 Session

FISCAL AND POLICY NOTE
Revised

Senate Bill 361 (Senator Teitelbaum, *et al.*)

Education, Health, and Environmental Affairs Economic Matters

Maryland Energy Administration - Geothermal Heat Pump Grant Program

This bill establishes a Geothermal Heat Pump Grant Program administered by the Maryland Energy Administration (MEA) to provide grants to individuals for a portion of the cost of acquiring and installing a geothermal heat pump. A grant award may not exceed $1,000.

The bill takes effect July 1, 2005.

Fiscal Summary

State Effect: General fund expenditures for grants and administrative expenditures will increase to the extent that funding is provided; it is assumed that the program would receive $77,625 in FY 2006 and $103,500 annually thereafter.

(in dollars)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Revenues	$0	$0	$0	$0	$0
GF Expenditure	77,600	103,500	103,500	103,500	103,500
Net Effect	($77,600)	($103,500)	($103,500)	($103,500)	($103,500)

Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate effect

Local Effect: None.

Small Business Effect: Minimal.

Analysis

Current Law: MEA is an independent unit of State government created, in part, to promote the conservation and efficient use of energy and to evaluate and coordinate energy-related policies and activities among State and local agencies. MEA currently administers several financial assistance programs, including: (1) the Solar Energy Grant Program, which provides grants to individuals, local governments, and businesses for a portion of the costs of acquiring and installing photovoltaic property and solar water heating property; (2) the Community Energy Loan Program, which provides loans to nonprofit organizations or local jurisdictions for projects in buildings in order to promote energy conservation and improve energy efficiency; (3) the State Agency Loan Program, which provides loans to State agencies for energy conservation improvements; and (4) the Energy Efficiency and Economic Development Loan Program, which provides loans to commercial and industrial entities to install energy efficiency improvements.

Background: The most common type of heat pump for domestic use, referred to as a "conventional" heat pump, is the air-to-air system in which heat is taken from air (heat source) at one location and transferred to air (heat sink) at another location. In the winter, a heat pump takes heat from outside air and transports the heat inside a home. In the summer, the heat pump reverses the process, removing heat from the home and transporting it to the outside air, cooling the house in the process. Conventional heat pumps lose efficiency in providing heat when outside temperatures drop below 20 to 30°F and switch to a higher cost electric resistance back-up heating system.

A geothermal heat pump is a heat pump that draws heat from or removes heat to the ground or ground water, instead of air. A geothermal heat pump benefits from nearly constant ground temperatures over most of the temperate climate zone in the continental U.S., regardless of outside air temperatures. The ground temperature is cooler than the air temperature in the summer and warmer than the air temperature in the winter, so the heat pump does not need to work as hard to cool or heat a home. A geothermal heat pump can also provide hot water at greatly reduced costs.

Depending on the location, geothermal heat pumps can reduce energy consumption and corresponding emissions of carbon and other air pollutants by more than 20%. Although heat pumps reduce electricity costs, a barrier to widespread use is the higher initial capital cost. On average, a geothermal heat pump system costs about $2,500 per ton of capacity, or roughly $7,500 for a three-ton unit (typical residential size). In comparison, other systems would cost about $4,000 with air conditioning. Based on energy and maintenance savings, geothermal heat pumps have a payback period of 2 to 10 years.

According to the U.S. Department of Energy, 33,868 geothermal heat pumps were purchased in the U.S. in 2002. Assuming the number of purchases in Maryland is proportional to population, 643 geothermal pumps were purchased in Maryland in 2002.

State Expenditures: The Governor's proposed fiscal 2006 budget does not include funding for the program; however, for purposes of this fiscal note, it is assumed that $77,625 would be provided for the program, which is based on an annual appropriation of $103,500 and reflects a 90-day start-up delay. Although the actual amount that would be appropriated for this program is unknown, an annual appropriation of $103,500 would be consistent with the fiscal 2006 allowance for the Solar Energy Grant Program administered by MEA.

Administrative expenditures to implement the grant program could increase by an estimated $48,474 in fiscal 2006. This estimate reflects the cost of hiring one grant administrator. It includes a salary, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Salary and Fringe Benefits	$43,897
Operating Expenses	4,577
Total FY 2006 Admin. Expenditures	**$48,474**

It is assumed that administrative expenses will be included in the total amount of any budget appropriation. Based on an appropriation of $77,625, the amount available for grants would, therefore, total $29,151 in fiscal 2006.

Assuming an annual appropriation of $103,500 in the out-years, a decreasing amount of funds would be available for grants due to increasing administrative expenditures, as shown below.

	FY 2007	**FY 2008**	**FY 2009**	**FY2 010**
Admin. Expenditures	$61,858	$65,446	$69,296	$73,429
Grant Expenditures	41,642	38,054	34,204	30,071
Total Expenditures	**$103,500**	**$103,500**	**$103,500**	**$103,500**

Future year administrative expenditures are annualized and reflect: (1) 4.6% annual increases in the salary and 3% employee turnover; and (2) 1% annual increases in ongoing operating expenses.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Maryland Energy Administration, U.S. Department of Energy, Department of Legislative Services

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Analysis by: Lesley G. Cook

Direct Inquiries to:
(410) 946-5510
(301) 970-5510